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EPA Superfund
Explanation of Significant Differences:

FORT ORD
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EXPLANATION OF SIGNIFICANT DIFFERENCES

EXCAVATION AND SEGREGATION OF SPENT AMMUNITION FROM SOIL
SITE 39
FORMER FORT ORD, CALIFORNIA

United States Department of the Army October 31, 2003

INTRODUCTION

Site Name and Location

The former Fort Ord is located near Monterey Bay in northwestern Monterey County, California, approximately 80 miles south of San Francisco. The former base comprised approximately 28,000 acres adjacent to the cities of Seaside, Sand City, Monterey, and Del Rey Oaks to the south and Marina to the north. A Santa Fe Pacific Railroad track and Highway 1 pass through the western portion of Fort Ord, separating the beachfront from the rest of the base. Laguna Seca Recreation Area and Toro Regional Park border Fort Ord to the south and southeast, respectively. Land use east of Fort Ord is primarily agricultural.

Site 39 comprises approximately 8,500 acres in the southern portion of Fort Ord. Site 39 is bounded by Eucalyptus Road to the north, Barloy Canyon Road to the east, Boundary Road and South Boundary Road to the south, and General Jim Moore Blvd to the west.

Identification of Lead and Support Agencies

Environmental investigations began at Fort Ord in 1984 at Fritzsche Army Airfield (FAAF) under California Regional Water Quality Control Board (RWQCB) cleanup and abatement orders. In 1990, Fort Ord was placed on the United States Environmental Protection Agency's (U.S. EPA's) National Priorities List (NPL), primarily because of volatile organic compounds (VOCs) found in groundwater. A Federal Facility Agreement (FFA) for Fort Ord was signed by the United States Department of the Army (Army) as the lead agency, U.S. EPA, the California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC) (formerly California Department of Health Services, Toxic Substances Control Program) and the RWQCB as support agencies.

Explanation of Significant Differences

If the lead agency (the Army) determines that a significant change to the selected remedy, as described in the Record of Decision (ROD), is necessary after the ROD is signed, Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and 40 CFR 300.435 (c)(2)(i) requires the lead agency to address post-ROD significant changes.

This Explanation of Significant Differences (ESD) describes a change in the final remedy selected for lead-contaminated soil at the Small Arms Ranges at Site 39, one of five sites addressed in the Basewide Remedial Investigation Sites Record of Decision, Fort Ord, California, January, 1997 (the RI Sites ROD). The Small Arms Ranges within Site 39 include, but may not be limited to, Ranges 18, 19, 21, 24, 25, and 46. The portion of the remedy for Site 39 that addressed the Small Arms Ranges included segregation and recycling of spent ammunition from soil containing lead prior to placement of soil at the Operable Unit 2 (OU 2) Landfill. The remedy to dispose of lead contaminated soils in the OU 2 Landfill was selected in the OU 2 ROD, dated August 1994, and three ESDs dated August 1995, August 1996, and January 1997. The same remedy was used to address lead contaminated soils excavated from the Small Arms Ranges at Site 3 (the Beach Trainfire Ranges) where conditions are similar to those at Site 39. The Site 3 remedy was selected in the Interim ROD, Site 3, Beach Trainfire Ranges, January 1997.

Due to public concerns, site conditions, and engineering constraints as described below, segregation and recycling of spent ammunition prior to placement at the OU 2 Landfill, when conducted for the Site 3 remedial activities, was found to be of significant public concern and technically and economically impractical. Therefore, the Army has determined that these procedures should be eliminated from the remedy for Small Arms Ranges at Site 39, which is a significant difference in the remedy as addressed herein.

This ESD will become part of the Administrative Record for Fort Ord, and will be available to the public at the following locations: Base Realignment and Closure (BRAC) Building, Building 4463 Gigling Road at the former Fort Ord, California; and California State University Monterey Bay, Library Learning Center, 100 Campus Center, Building 12, Seaside, California.

SUMMARY OF SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY

Site History

From its opening in 1917, Fort Ord primarily served as a training and staging facility for infantry troops. 1n 1991, Fort Ord was selected for closure. In 1993, the majority of the soldiers were reassigned to other Army posts. The post was officially closed in 1994.

Site 39, which includes the Multi-Range Area (MRA), was reportedly used since the early 1900s for small arms training and ordnance training exercises, including onshore naval gunfire. Over the years, in addition to small arms rounds, various types of ordnance have been used or found in the MRA, including hand grenades, mortars, rockets, mines, artillery rounds. The remedy for Site 39 as described in the RI Sites ROD addresses lead contamination at the Small Arms Ranges, as well as explosive compounds, petroleum hydrocarbons, and other metals associated with training activities. Ordnance is being addressed through other remedial or removal actions.

Site Characteristics

Results of the Remedial Investigation (RI) indicate the metals lead and beryllium, explosive compounds, and organic compounds are present in shallow soil above background concentrations in localized areas at Site 39, and are associated with past military training activities.

Spent ammunition found at the Small Arms Ranges consists of bullets, black powder rifle balls, and lead shot. Lead is the primary chemical of concern in soil at the Small Arms Ranges at Site 39. In localized areas, spent ammunition is found on the ground surface.

Selected Remedy

The RI Sites ROD, which includes Site 39, was signed January 24, 1997, and included the following remedy for soil:

l. Excavation and segregation of spent ammunition from soil at the Small Arms Ranges containing residual lead. Recycling of spent ammunition and fragments at a metals refinery, and placement of lead-containing soil at the OU 2 Landfill. This ESD affects this portion of the remedy.

2. Excavation of soil containing TPH, the explosive compound cyclotrimethylene trinitramine (RDX), and beryllium, and placement at the OU 2 Landfill. This ESD does not affect this portion of the remedy.

3. Institutional controls (such as deed restrictions) prohibiting residential use will be required unless a post remediation risk evaluation indicates the contaminant residual levels are appropriate for unlimited use. This ESD does not affect this portion of the remedy.

DESCRIPTION AND BASIS OF SIGNIFICANT DIFFERENCES

As described in the RI Sites ROD, the remedy for soils at the Small Arms Ranges at Site 39 includes excavation and segregation of spent ammunition, recycling the spent ammunition and fragments at a metals refinery, and placement of lead contaminated soils at the OU 2 Landfill. The purposes of segregation and recycling were to:

1. Reduce the volume of material to be placed in the OU 2 Landfill,

2. Provide beneficial reuse of the recovered metals, and

3. Generate revenue from recycling the metals to offset remedial costs.

The Army has reevaluated this approach based on its experience performing these operations at the Site 3 Small Arms Ranges. Both the segregation and recycling operations were found to be of significant public concern and technically or economically impractical for use at future sites such as Site 39 as described below. In addition, public concerns were raised regarding potential risks associated with exposure to lead-contaminated dust generated during segregation (mechanical screening) operations.

For these reasons, the Army recommended revising the remedy for soil at the Small Arms Ranges at Site 39 as follows:

- Placement of excavated soil containing residual lead and spent ammunition in the OU 2 Landfill without treatment (segregation of spent ammunition) as described previously in the RI Sites ROD. This action was completed for Ranges 18, 19, 21, 24, 25, and 46. Since the final cover has been placed at the OU 2 Landfill, this remedy change will not apply to future remedies for lead contaminated soil at Small Arms Ranges at Site 39.

Rationale

The rationale for eliminating segregation and recycling of spent ammunition from the remedy for soil at the Small Arms Ranges at Site 39 is described below.

1. **Public Concerns** - There was significant negative public reaction to segregating or mechanical screening of spent ammunition from Site 3 soil because of concerns related to the potential risks associated with exposure to lead-contaminated dust. Air modeling and monitoring were performed to evaluate the risk to the public and worker safety during Site 3 screening operations, and the results showed no increase in health risks to the public or workers. However, it was anticipated that the public would have similar concerns if screening were performed at Site 39 or at the OU 2 Landfill where it was performed under the Site 3 remedy.

2. **Volume Reduction** - Screening of the Site 3 soils resulted in only a very small reduction in the volume of soil that was placed in the OU 2 Landfill. At Site 3, the material removed by screening represented approximately 0.1% by volume (0.2% by weight) of the total amount of material that was excavated. This was a much lower proportion than the 12.7% anticipated in the ROD for Site 3.

3. **Beneficial Reuse** - Screening was intended to produce a recyclable metal product (spent ammunition) that could be recovered for its valuable metal content. However, between the times the ROD was signed and a contract was established for recycling spent ammunition from Site 3, the metals market had fluctuated, and the anticipated recycler's specifications changed. Final specifications required the spent ammunition be at least 85% lead, and be crushed, washed and sieved to remove rock fragments. Actual site conditions were not ideal to meet these specifications: many of the ranges contained gravel, and the composition and lead content varied significantly from range to range depending on the type of spent ammunition present.

4. **Remedial Costs** - At the time the Site 3 screening operation was designed, it was expected that recycling would generate revenue that would significantly reduce the costs of the screening operation. In practice, the costs of screening increased due to need for crushing, washing, and sieving prior to recycling, while the revenue from the product decreased because of the decline in the metals market and the availability of local recyclers. The total cost of screening for Site 3, including air monitoring, was approximately $4.7 million. The revenue generated from screening and recycling was only $52,000. Since the Site 3 work was completed, there has been a further decline in the metals market, which would result in a further decrease in potential revenue generated from recycling. In addition,

screening is a labor-and equipment-intensive procedure that would prolong the cleanup time, adding to overall remedial costs.

5. **Placement of Spent Ammunition in the OU 2 Landfill** - The placement of soil containing spent ammunition in the OU 2 Landfill (the remediation completed for Ranges 18, 19, 21, 24, 25, and 46) is not expected to pose an additional threat to human health or the environment for the following reasons:

- The OU 2 Landfill was capped with a low-permeable material, maintained, and monitored in accordance with state and federal regulations as described in the OU 2 Landfill Operations and Maintenance Plan. These procedures will minimize risks associated with landfilled materials, including spent ammunition, as follows:

  – The cap will prevent human contact with landfilled materials
  – The cap will prevent rainwater and surface water from contacting landfilled materials, minimizing the potential migration of contaminants
  – The cap will be maintained and monitored, and routine repairs will be made as needed to maintain its integrity
  – Groundwater will be routinely monitored for contaminants associated with landfilled materials to verify the cap is effective in minimizing migration of contaminants.

- The leachability modeling performed in the Technical Memorandum, RI and IA Sites Waste Compatibility, OU 2 Landfill (HLA, 1997) indicated metals would not migrate or leach within the OU 2 Landfill environment. The modeling results were valid for metals such as lead whether in the form of spent ammunition or as residual lead in soil. Therefore, there is no greater risk involved in terms of the leaching potential of lead if spent ammunition is not removed prior to landfilling.

- The Remedial Action Work Plan, Basewide Remediation Sites, Fort Ord, California, Revision 4 (RAWP) (IT, 1997) Appendix L, describes the methods and procedures for the excavation, removal, and disposition of lead-contaminated soils from Ranges 18 and 19, which were placed in the OU 2 Landfill. This appendix also addresses dust control procedures to be conducted at the excavation and disposal areas and during transport. The primary method of dust control was the use of water trucks. Operations were stopped in high winds if water spraying was insufficient to control dust. Dust generation was monitored as described in the appendix and additional water spraying, or production controls were applied as necessary.

Summary and Conclusions

Based on lessons learned from the previous segregation (screening) operations for the Site 3 Small Arms Ranges at the OU 2 Landfill, and due to the inherent variability in its benefits, the Army has determined it would be of significant public concern and technically and economically impractical to perform segregation at the Site 39 Small Arms Ranges.

Screening at Site 39 would have minimal environmental benefits (volume reduction and beneficial reuse of metals) that are outweighed by concerns regarding dispersion of lead-contaminated dust in the air and

increased handling. In addition, the elimination of screening significantly reduced the duration and expense of the Site 39 cleanup activities. The placement of soil containing spent ammunition in the OU 2 Landfill (completed for Ranges 18, 19, 21, 24, 25, and 46) will not pose an additional threat to human health or the environment.

AFFIRMATION OF STATUTORY DETERMINATIONS

This final remedy satisfies the requirements of CERCLA Section 121. The Army, U.S. EPA, and Cal/EPA (DTSC and RWQCB) believe that this approach remains protective of human health and environment, complies with federal and state applicable or relevant and appropriate requirements (ARARs) for this remedial action, and is able to be achieved in a cost effective manner.

PUBLIC PARTICIPATION

During quarterly OU 2 Landfill Updates at Community Involvement Workshops and Technical Review Committee Meetings before and during the action, the public was informed of the actions taken to remove soil from Ranges 18, 19, 21, 24, 25, and 46 and place it, without screening, into the OU 2 Landfill. The rationale above was also explained. A notification to the public concerning this ESD will be made in a local newspaper after signature. The Administrative Record is available for review by the public at the Base Realignment and Closure (BRAC) Building, Building 4463 Gigling Road at the former Fort Ord. Information repositories are at the following locations: Chamberlain Library, Building 4275 General Jim Moore Boulevard, Ord Military Community, California; California State University Monterey Bay, Library Learning Center, 100 Campus Center, Building 12, Seaside, California; and Seaside Branch Library, 550 Harcourt Avenue, Seaside, California.

{Signatures follow}

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United States Department of the Army

Thomas E Lederle 26 Nov 2003

Thomas Lederle Date
Director, Base Realignment and Closure
Hampton Field Office

Gail Youngblood 10 November 2003

Gail Youngblood Date
BRAC Environmental Coordinator
Former Fort Ord

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U.S. Environmental Protection Agency

1 Dec '03

Joel Jones Date
Chief, Federal Facility and Site Cleanup Branch
U.S. Environmental Protection Agency,
Region IX

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California Environmental Protection Agency
Department of Toxic Substances Control

The State of California, acting by and through the Department of Toxic Substances Control and the Central Coast Regional Water Quality Control Board, had an opportunity to review and comment on the Explanation of Significant Differences, Excavation and Segregation of Spent Ammunition, Site 39, and the State's concerns were addressed.

Anthony J. Landis, P.E. 11-12-03
Anthony J. Landis, P.E. Date
Chief of Operations, Office of Military Facilities
California Environmental Protection Agency
Department of Toxic Substances Control

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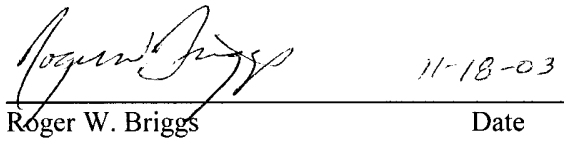

Roger W. Briggs Date
Executive Officer
California Environmental Protection Agency
Central Coast Regional Water Quality
Control Board